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# New Names and New Combinations in Campanulaceae

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**ABSTRACT.** New names and new combinations are proposed for 15 species of Campanulaceae s.l. that have no legitimate name at that rank in the genus to which they should be assigned. These nomenclatural innovations include changes of genus and rank among the endemic Hawaiian Lobelioideae, the final installment in the incorporation of *Pratia* into *Lobelia*, and replacement of two illegitimate names in Campanuloideae.

In the course of compiling a checklist of the species of Campanulaceae s.l. currently recognized in the world's taxonomic literature (floras, checklists, monographs, revisions), a few species were found to have no legitimate name in the genus to which they should be assigned. New names and combinations have been effected already (Lammers, 1995) for those involving the illegitimate generic name *Lightfootia* L'Héritier de Brutelle. Here, new names and new combinations are made for the remainder.

## HAWAIIAN LOBELIOIDEAE

The most recent treatment of the Hawaiian Lobelioideae is the account contributed (Lammers, 1990) to the *Manual of the Flowering Plants of Hawai'i*. Since its publication, this synopsis has been expanded into a series of generic monographs. In several cases, examination of a larger body of specimens and consideration of a more comprehensive suite of characters has convinced me that taxa that I treated as conspecific did indeed merit recognition. Because the monographs of *Cyanea* Gaudichaud-Beaupré and *Delissea* Gaudichaud-Beaupré will not be completed before the checklist goes to press, the following new combinations in those genera are published here. This will also make them available for use by other workers in the areas of biological conservation and biogeography.

In the *Manual*, *Cyanea grimesiana* Gaudichaud-Beaupré subsp. *grimesiana* was circumscribed very broadly, encompassing not only populations on O'ahu (the type locality), but also those on Moloka'i, Maui, and Lāna'i. However, some of these latter populations (recognized as varieties by earlier botanists) are distinguishable morphologically, both from each

other and from the O'ahu populations of *C. grimesiana* subsp. *grimesiana*. Furthermore, the degree of morphological differentiation is commensurate with that usually accorded specific rank elsewhere in the genus. Consequently, these plants and those previously recognized as *C. grimesiana* subsp. *cylindrocalyx* are here elevated to specific rank.

***Cyanea cylindrocalyx*** (Rock) Lammers, comb. et stat. nov. Basionym: *Cyanea grimesiana* var. *cylindrocalyx* Rock, Bull. Torrey Bot. Club 44: 235. 1917. *Delissea grimesiana* var. *cylindrocalyx* (Rock) H. St. John, Phytologia 63: 83. 1987. *Cyanea grimesiana* subsp. *cylindrocalyx* (Rock) Lammers, Syst. Bot. 13: 502. 1987. TYPE: Hawaiian Islands. Hawai'i: Waipi'o Valley [Waimā branch], 16 July 1909, Rock 4629 (holotype, BISH; isotypes, BISH [2]).

***Cyanea mauiensis*** (Rock) Lammers, comb. et stat. nov. Basionym: *Cyanea grimesiana* var. *mauiensis* Rock, Monogr. Stud. Haw. Lobelioid. 251. 1919. *Delissea grimesiana* var. *mauiensis* (Rock) H. St. John, Phytologia 63: 84. 1987. TYPE: Hawaiian Islands. West Maui: gulch of "Olualu" [Olowalu], Aug. 1870, Hillebrand s.n. (lectotype, designated by Lammers [1994: 558], US; isotypes, GH, K).

*Cyanea grimesiana* var. *lydgatei* Rock, Monogr. Stud. Haw. Lobelioid. 251. 1919. Syn. nov. *Delissea grimesiana* var. *lydgatei* (Rock) H. St. John, Phytologia 63: 83. 1981. TYPE: Hawaiian Islands. East Maui: Makawao, Hāmākua, *Lydgate* 62 (Rock [1919: pl. 140], designated by Lammers [1994: 558]).

***Cyanea munroi*** (Hosaka) Lammers, comb. et stat. nov. Basionym: *Cyanea grimesiana* var. *munroi* Hosaka, Occas. Pap. Bernice Pauahi Bishop Mus. 14: 30. 1938. *Delissea grimesiana* var. *munroi* (Hosaka) H. St. John, Phytologia 63: 84. 1987. TYPE: Hawaiian Islands. Lāna'i: Kaiholena, 3 Nov. 1913, *Munro* 166 (holotype, BISH; isotypes, BISH [2], US).

These species may be distinguished using the following key. Note that the populations of *C. grimesiana* on O'ahu are still divided into subspecies *grimesiana* and subspecies *obatae* (H. St. John) Lammers.

- 1a. Hypanthium campanulate, the base rounded or truncate; corolla 7.5–12 times longer than the hypanthium, the dorsal lobes 35–40 mm long, as long as the tube to half again as long; dorsal anthers 15–16 mm long and the ventral ones 12–14 mm long (Maui) . . . . . *C. mauiensis*
- 1b. Hypanthium obconic, the base attenuate; corolla 4–7.5 times longer than the hypanthium, the dorsal lobes 15–32 mm long,  $\frac{1}{3}$  as long as the tube to about as long; dorsal anthers 9.5–14 mm long and the ventral ones 7.5–10 mm long.
- 2a. Calyx lobes spreading at base before curving upward; corolla tube broadest at or near middle, tapering toward both apex and base, strongly arcuate; base of anther tube pubescent (Moloka'i, Lāna'i) . . . . . *C. munroi*
- 2b. Calyx lobes erect from base or nearly so; corolla tube broadest at base, tapering toward the apex, curved or somewhat arcuate; base of anther tube glabrous.
- 3a. Upper portion of lamina pinnately parted or cleft, 2–4.5 cm wide between the segments; calyx lobes connate at base for 7–25 mm; dorsal corolla lobes  $\frac{3}{4}$  as long as the tube to almost as long; only the two ventral anthers pubescent at apex (Waipi'o Valley on Hawai'i) . . . . . *C. cylindrocalyx*
- 3b. Upper portion of lamina pinnately divided, 0.2–1.5 cm wide between the segments; calyx lobes distinct but overlapping; dorsal corolla lobes  $\frac{1}{3}$ – $\frac{2}{3}$  as long as the tube; all five anthers pubescent at apex . . . . . *C. grimesiana*
- 4a. Segments of the lamina narrowly elliptic, narrowly oblong, or narrowly triangular; calyx lobes 3–13 mm long, 1–2 mm wide, linear or narrowly triangular, separated at base by narrow sinuses; anther tube 2.5–3.2 mm diam. (S Wai'anae Mts. of O'ahu) . . . *C. grimesiana* subsp. *obatae*
- 4b. Segments of the lamina lanceolate or rarely narrowly elliptic; calyx lobes 15–30 mm long, 4–10 mm wide, ovate or lanceolate, overlapping at base; anther tube 3.5–4.5 mm diam. (Ko'olau and N Wai'anae Mts. of O'ahu, Moloka'i) . . . . . *C. grimesiana* subsp. *grimesiana*

Although *Rollandia* Gaudichaud-Beaupré was recognized in the *Manual*, subsequent data from chloroplast DNA restriction site analysis indicated that its species were embedded well within the phylogeny of *Cyanea*, making that genus paraphyletic. To remedy this situation, the taxa of *Rollandia* recognized in the *Manual* were transferred to *Cyanea* (Lammers et al., 1993). In the course of monographic studies, however, it became apparent that two additional species formerly assigned to *Rollandia* could be distinguished and thus required names in *Cyanea*.

The first, *C. calycina*, was treated in the *Manual*

as a subspecies of *Rollandia lanceolata* Gaudichaud-Beaupré, and maintained at that rank and position upon transfer to *Cyanea*. However, the morphological differences separating the two groups of populations are more pronounced than is usual for conspecific subspecies in the group. Particular weight is given to the branched or clustered hairs on the abaxial leaf surface. Such hairs are unusual in Lobelioideae. They are known from no other Hawaiian species, occurring only in some species of the neotropical genera *Centropogon* C. Presl and *Siphocampylus* Pohl (Lammers, in press). Furthermore, the ranges of the two supposed subspecies overlap to a greater degree than previously realized, while morphologically intermediate specimens are quite rare.

***Cyanea calycina*** (Chamisso) Lammers, comb. nov.

Basionym: *Lobelia calycina* Chamisso, *Linnaea* 8: 222. 1833. *Rollandia calycina* (Chamisso) G. Don, *Gen. Hist.* 3: 699. 1834. *Delissea calycina* (Chamisso) C. Presl, *Prodr. Monogr. Lobel.* 47. 1836. *Rollandia lanceolata* subsp. *calycina* (Chamisso) Lammers, *Syst. Bot.* 13: 507. 1988. *Cyanea lanceolata* subsp. *calycina* (Chamisso) Lammers, Givnish & Sytsma, *Novon* 3: 439. 1993. TYPE: Hawaiian Islands. "O Wahu" [O'ahu]: Chamisso s.n. (holotype, LE).

The two species may be distinguished with the following key:

- 1a. Abaxial surface of lamina pubescent, at least some of the trichomes branched or clustered; hypanthium  $\frac{1}{5}$ – $\frac{1}{8}$  as long as the corolla; calyx lobes rounded or truncate at apex (Wai'anae and Ko'olau Mts. of O'ahu) . . . . . *C. calycina*
- 1b. Abaxial surface of lamina glabrous or pubescent, but all trichomes simple; hypanthium  $\frac{1}{8}$ – $\frac{1}{12}$  as long as the corolla; calyx lobes acute or obtuse at apex (S Ko'olau Mts. of O'ahu) . . . *C. lanceolata*

The second transfer from *Rollandia* is *R. sessilifolia* O. Degener, which was treated in the *Manual* as a synonym of *R. longiflora* Wawra. As with *Cyanea grimesiana*, more detailed study showed that two morphologically well-defined groups of populations had been included under a single name.

***Cyanea sessilifolia*** (O. Degener) Lammers, comb. nov.

Basionym: *Rollandia sessilifolia* O. Degener, *Fl. Hawaiiensis*, fam. 339. 1932. TYPE: Hawaiian Islands. O'ahu: along Pūpūkea–Kahuku trail, in forest, 17 May 1931, Degener, Hirai & Park 4106 (holotype, NY; isotypes, BISH, CAS, GH, US).

The two species may be distinguished with the following key:

- 1a. Leaves sessile; hypanthium obovoid; anther tube 2.7–3.4 times longer than wide, pubescent at base on the connectives (N Ko'olau Mts. of O'ahu) . . . . . *C. sessilifolia*  
1b. Leaves with petioles 0.5–6 cm long; hypanthium obconic or cylindrical; anther tube 3.4–4.6 times longer than wide, the surfaces glabrous (Wai'anae and C Ko'olau Mts. of O'ahu) . . . . .  
. . . . . *C. longiflora*

Many species described under *Delissea* by St. John (1987, 1988a, 1988b) are referable to previously described species of *Cyanea* (Lammers, 1988, 1990, 1992). A few, however, did represent species previously undescribed but referable to *Cyanea*. Two were transferred previously (Lammers, 1992), and two more are transferred here. Because their protologues contained no descriptions, only the briefest of Latin diagnoses, an expanded description is provided here for each.

***Cyanea habenata*** (H. St. John) Lammers, comb. nov. Basionym: *Delissea habenata* H. St. John, *Phytologia* 63: 342. 1987. TYPE: Hawaiian Islands. Kaua'i: Limahuli Valley, in stream bed, 20° slope, dark porous wet soil, in partial shade, 2000 ft., 27 Sep. 1978, *Perlman & Wichman 224* (holotype, BISH; isotype, BISH).

Shrub, 2.4 m tall. Stems branched, glabrous. Lamina 11–20 cm long, 1.4–2.3 cm wide, narrowly elliptic or narrowly oblong; adaxial surface dark green, glabrous; abaxial surface light green, glabrous; margin callose-serrulate, often revolute; apex acuminate; base cuneate; petiole 2.5–6.8 cm long, glabrous. Inflorescences 5–10-flowered; peduncle 25–28 mm long, glabrous; rachis 4–7 mm long, glabrous; bracts deciduous; pedicels 6–8 mm long. Hypanthium 3–4 mm long, 2–3 mm diam., broadly obovoid, glabrous. Calyx lobes 0.5 mm long, deltate or shallowly deltate, the apex acute. Corolla 22–28 mm long, white faintly tinged with purple, glabrous; tube 13 mm long, 2 mm diam. at middle, gently curved, dorsally cleft for about half its length; dorsal lobes 15 mm long, 1.7 mm wide, linear, the apex acuminate; ventral lobes 11 mm long, 2 mm wide, linear, basally connate for 6 mm, the apex acuminate. Staminal column exserted; filament tube 23 mm long, glabrous; anther tube 2 mm diam., the surfaces glabrous; dorsal anthers 6 mm long; ventral anthers 4.8 mm long, with tufts of hairs at apex. Berries and seeds unknown. Known only from the type locality on northern Kaua'i.

This species is similar to *Cyanea spathulata* (Hillebrand) A. Heller of western Kaua'i and *C. kahiliensis* (H. St. John) Lammers of southern and eastern Kaua'i (see below), differing primarily in

having shorter pedicels, relatively broader hypanthium, and a more deeply cleft corolla. It resembles the former in its serrulate often revolute leaves and slightly smaller flowers; and the latter in its glabrous acuminate leaves.

***Cyanea kahiliensis*** (H. St. John) Lammers, comb. nov. Basionym: *Delissea kahiliensis* H. St. John, *Phytologia* 63: 343. 1987. TYPE: Hawaiian Islands. Kaua'i: Wahiawa Bog, Kāhili Ridge along road, 26 Aug. 1982, *Corn s.n.* (holotype, BISH).

*Delissea inermis* H. St. John, *Phytologia* 63: 343. 1987. Syn. nov. Not H. St. John, *Phytologia* 64: 172. 1988. TYPE: Hawaiian Islands. Kaua'i: Lihu'e-Kona Forest, Wahiawa Mts., on Wahiawa Stream, 10 ft. off on left and 10 ft. off on right near *Hesperomannia* on down stream side, wet rain forest, 680 m, 12 Sep. 1979, *Perlman 486* (holotype, BISH; isotypes, BISH [2]).

*Delissea inermis* H. St. John, *Phytologia* 64: 172. 1988. Syn. nov. Not H. St. John, *Phytologia* 63: 343. 1987. TYPE: Hawaiian Islands. Kaua'i: Wahiawa Valley, common, 742 m, 18 Sep. 1979, *Perlman 486A* (holotype, BISH; isotypes, BISH [4]).

*Cyanea spathulata* subsp. *longipetiolata* Lammers, *Syst. Bot.* 13: 504. 1988. Syn. nov. TYPE: Hawaiian Islands. Kaua'i: Wahiawa Mts., along road to Microwave Relay Towers near first radio house, 2320 ft., 7 Sep. 1984, *Flynn 940* (holotype, OS; isotype, BISH).

Shrubs, 1–4.6 m tall. Stems branched, glabrous. Lamina 8–22 cm long, 1–4 cm wide, narrowly elliptic or narrowly oblong; adaxial surface green, glabrous; abaxial surface pale green, glabrous; margin callose-crenulate; apex acute or acuminate, rarely obtuse; base cuneate; petiole 5–16 cm long, glabrous. Inflorescences 8–10-flowered; peduncle 10–80 mm long, glabrous; rachis 4–14 mm long, glabrous; bracts 0.6–0.8 mm long, deltate, deciduous; pedicels 8–18 mm long. Hypanthium 4–5 mm long, 3–4 mm diam., obovoid, glabrous. Calyx lobes 0.4–0.6 mm long, deltate or shallowly deltate, the apex acute. Corolla 19–25 mm long, white, sometimes tinged greenish or purplish, glabrous; tube 14–16 mm long, 1.5–2.5 mm diam. at middle, suberect or slightly curved, dorsally cleft for  $\frac{1}{5}$ – $\frac{1}{2}$  its length; dorsal lobes 5–10 mm long, 0.8–1.3 mm wide, linear or linear triangular, the apex acuminate; ventral lobes 5–8 mm long, 1–1.5 mm wide, linear triangular, connate at base for 2–4 mm, the apex acuminate. Staminal column slightly exserted; filament tube 16–20 mm long, glabrous; anther tube 1.5–1.9 mm diam., the surfaces glabrous; dorsal anthers 5.2–6 mm long; ventral anthers 4.3–4.8 mm long, with tufts of hairs at apex. Berries and seeds unknown. Endemic to Kaua'i, in the Wahiawa

Mountains and at the headwaters of the Wailua River; diverse mesic forest and wet forest, 490–800 m.

*Additional specimens examined.* HAWAII. **Kaua'i:** Mt. Kāhili, *Carlquist 1762* (BISH); road to Kāhili transmitter station, *Fay 149* (A, BISH, F, NY, PTBG, WIS); Mt. Kāhili, *Flynn 273* (PTBG), *Flynn 671* (PTBG), *Flynn 935* (F, OS), *Flynn et al. 2379* (F, MU, PTBG); tributary of Wahiawa Str., *Flynn et al. 3463* (PTBG); Wahiawa Mts., *Forbes 197.K* (BISH, NY); Wahiawa Mts., Aug. 1909, *Forbes s.n.* (BISH); Kāhili, *Gustafson et al. 3056* (LAM); Mt. Kāhili, *Herbst 2086* (BISH, PTBG); headwaters of N fork Wailua R., *Lorence et al. 5367* (F, PTBG); Wahiawa Mts., *Lydgate s.n.* (BISH).

In the *Manual*, this taxon was treated as a subspecies of *C. spathulata*. However, the differences separating it from *C. spathulata* s. str. are such that recognition at species rank is more consistent with my practice in the genus. Of the two available names at specific rank, I chose to take up *D. kahiliensis*, as it reflects the near-restriction of this species to Mt. Kāhili.

Similarly, the populations that I previously recognized as *Delissea sinuata* subsp. *lanaiensis* are easily as distinct from *D. sinuata* s. str. as any two species in the genus.

***Delissea lanaiensis*** (Rock) Lammers, comb. et stat. nov. Basionym: *Delissea sinuata* var. *lanaiensis* Rock, Monogr. Stud. Haw. Lobelioid. 353. 1919. *Delissea sinuata* subsp. *lanaiensis* (Rock) Lammers, Syst. Bot. 13: 505. 1988. TYPE: Hawaiian Islands. Lāna'i: 1871, *Hillebrand s.n.* (lectotype, designated by Lammers [1988: 505], GH).

The two species may be distinguished using the following key:

- 1a. Lamina 25–28 cm long, oblanceolate or spatulate; petiole 7.5–12 cm long; peduncle 37–50 mm long (O'ahu) . . . . . *D. sinuata*  
 1a. Lamina 15–21 cm long, oblanceolate or elliptic; petiole 2.5–7 cm long; peduncle 12–15 mm long (Lāna'i) . . . . . *D. lanaiensis*

#### PRATIA

Over the past 35 years, numerous authors (for a summary, see Lammers, 1993) have argued that recognition of *Pratia* Gaudichaud-Beaupré as a genus distinct from *Lobelia* L. was indefensible. These authors generally transferred the species indigenous to their geographic areas, but it was only recently that Murata (1995) formally merged the two genera by establishing *Pratia* and its section *Colensoa* (Hooker f.) Baillon as sections within *Lobelia*. Though most of the species currently recog-

nized have names available in *Lobelia*, five remain that do not.

***Lobelia australiensis*** Lammers, nom. nov. Replaced name: *Pratia prostrata* E. Wimmer, Reper. Spec. Nov. Regni Veg. 38: 3. 1935; not *Lobelia prostrata* A. Zahlbr., Bull. Herb. Boissier (ser. 2) 7: 447. 1907. TYPE: Australia. In creeks, *Cunningham s.n.* (holotype, CGE not seen).

***Lobelia brevisepala*** (Y. S. Lian) Lammers, comb. nov. Basionym: *Pratia brevisepala* Y. S. Lian, Fl. Reipubl. Popul. Sin. 73(2): 189. 1983. TYPE: China. Yunnan: Xichou, 1500–1600 m, *Feng 11936* (holotype, PE not seen).

***Lobelia macrodon*** (Hooker f.) Lammers, comb. nov. Basionym: *Pratia macrodon* Hooker f., Handb. New Zealand Fl. 172. 1867. TYPE: New Zealand. Acheron and Clarence Rivers, 5500 ft., *Travers s.n.* (holotype, K not seen).

***Lobelia pratiana*** Gaudichaud-Beaupré ex Lammers, nom. nov. Replaced name: *Pratia repens* Gaudichaud-Beaupré, Ann. Sci. Nat. 5: 103. 1825; not *Lobelia repens* Thunberg, Prodr. Fl. Cap. 40. 1794. TYPE: Falkland Islands. *Gaudichaud s.n.* (holotype, P not seen).

Although Murata (1995) used this name, it was never validly published; it was merely cited by Gaudichaud-Beaupré (1829) as a synonym of *Pratia repens*.

***Lobelia reflexisepala*** Lammers, nom. nov. Replaced name: *Pratia reflexa* Y. S. Lian, Acta Phytotax. Sinica 17(3): 123. 1979; not *Lobelia reflexa* Stokes, Bot. Mat. Med. 1: 342. 1812. TYPE: Tibet. Mo Tuo, 2700 m, *Qinghai-Xizang Exped. Team 74-3970* (holotype, PE not seen).

#### CAMPANULOIDEAE

Two species of Campanuloideae require replacement names, because they have been known for many years by names that are later homonyms.

***Campanula immodesta*** Lammers, nom. nov. Replaced name: *Campanula modesta* Hooker f. & Thomson, J. Proc. Linn. Soc., Bot. 2: 24. 1858; not Schott in Schott, Nyman & Kotschy, Analect. Bot. 13. 1854. TYPE: India. Sikkim: in regione alpina Himalayae orientalis, 11,000–14,000 ft., *Hooker & Thomson s.n.* (holotype, K not seen).

In order to create a new name not far removed

from the original, I have employed the antonym of the original epithet.

**Wahlenbergia brehmeri** Lammers, nom. nov. Replaced name: *Wahlenbergia rotundifolia* Brehmer, Bot. Jahrb. Syst. 53: 124. 1915; not (Bentham) A. DC., in DC., Prodr. 7: 425. 1839. TYPE: South Africa. Cape Province: Tafelberg, 600 m, *Schlechter 65* (holotype, B not seen).

The new name honors German botanist Wilhelm Georg Baptist Alexander von Brehmer (1883–?), who revised the African species of *Wahlenbergia* (Brehmer, 1915a, 1915b).

#### Literature Cited

- Brehmer, W. von. 1915a. Über die systematische Gliederung und Entwicklung der Gattung *Wahlenbergia* in Afrika. Bot. Jahrb. Syst. 53: 9–71.
- . 1915b. Aufzählung der afrikanischen Arten von *Wahlenbergia* nebst Diagnosen der neuen Arten. Bot. Jahrb. Syst. 53: 72–143.
- Gaudichaud-Beaupré, C. 1829. Campanulaceae. Pp. 455–459 in *Voyage autour du Monde, Botanique*. Chez Pillet Aîné, Paris.
- Lammers, T. G. 1988. New taxa, new names, and new combinations in the Hawaiian Lobelioideae (Campanulaceae). Syst. Bot. 13: 496–508.
- . 1990. Campanulaceae. Pp. 420–489 in W. L. Wagner, D. R. Herbst & S. H. Sohmer, *Manual of the Flowering Plants of Hawai'i*. Univ. Hawaii Press and Bishop Museum Press, Honolulu.
- . 1992. Two new combinations in the endemic Hawaiian genus *Cyanea* (Campanulaceae: Lobelioideae). Novon 2: 129–131.
- . 1993. Chromosome numbers of Campanulaceae. III. Review and integration of data for subfamily Lobelioideae. Amer. J. Bot. 80: 660–675.
- . 1994. Typification of the names of Hawaiian Lobelioideae (Campanulaceae) published by Wilhelm Hilbrand or based upon his specimens. Taxon 43: 545–572.
- . 1995. Transfer of the southern African species of *Lightfootia*, nom. illeg., to *Wahlenbergia* (Campanulaceae, Campanuloideae). Taxon 44: 333–339.
- . In press. Review of the neotropical endemics *Burmeistera*, *Centropogon*, and *Siphocampylus* (Campanulaceae: Lobelioideae), with description of eighteen new species and a new section. Brittonia.
- , T. J. Givnish & K. J. Sytsma. 1993. Merger of the endemic Hawaiian genera *Cyanea* and *Rollandia* (Campanulaceae: Lobelioideae). Novon 3: 437–441.
- Murata, J. 1995. A revision of infrageneric classification of *Lobelia* (Campanulaceae–Lobelioideae) with special reference to seed coat morphology. J. Fac. Sci. Univ. Tokyo (sec. 3) 15: 349–371.
- Rock, J. F. 1919. A monographic study of the Hawaiian species of the tribe Lobelioideae family Campanulaceae. Mem. Bernice Pauahi Bishop Mus. 7(2): i–xvi, 1–395.
- St. John, H. 1987. Diagnoses of *Delissea* species (Lobeliaceae) from Kauai. Hawaiian Plant Studies 145. Phytologia 63: 339–349.
- . 1988a. Diagnoses of new *Delissea* species (Lobeliaceae). Hawaiian Plant Studies 162. Phytologia 64: 165–168.
- . 1988b. More new species of *Delissea* (Lobeliaceae). Hawaiian Plant Studies 126. Phytologia 64: 172.